PIE SLICE ACCOUNTING

A GRAPHICAL REPORTING MODEL FOR INTEGRATED PERFORMANCE ACCOUNTING

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Performance accounting is fundamentally *multi-capital impact accounting* in principle ...

“[O]n a complicated subject where many misunderstandings can take place, it is good practice to first start by elaborating a common language or a common general framework. The one that we have tried to emphasize is the so-called ‘stock-based’ or ‘capital-based’ or ‘wealth-based’ approaches to sustainability. ... Current well-being has to do with both economic resources, such as income, and with non-economic aspects of people’s [lives] ... Whether these levels of well-being can be sustained over time depends on whether stocks of capital that matter for our lives (natural, physical, human, social) are passed on to future generations ....”

Stiglitz, J., Sen, A., and Fitoussi, J.  
*Report by the Commission on the Measurement of Economic Performance and Social Progress (and in Mismeasuring Our Lives)*, 2010
What is capital?

To qualify as capital, a thing must:
- Consist of resources important for human well-being
- Be made up of stocks (S) and flows (F), by which:
  - Stocks continually produce flows
  - Flows are consumed for human well-being
- Only sometimes consist of economic things

Capital: A stock of anything and the continual flow of valuable goods or services it produces
Stocks: Accumulations of things that produce continual flows of valuable goods or services
Flows: Outputs of valuable goods or services that stocks of capital continually produce
Two illustrations of capitals in action ...

**AREAS OF IMPACT**

- **Climate System** *(a form of global natural capital)*
- **Gender Equality** *(a form of internal social capital)*

**STOCKS**

- The Climate System
- Governance Bodies

**FLOWS**

- Temperature Regulation
- Enforced Gender Policies

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The sustainability of a human social system can be expressed as the quotient of demands for vital capitals over their supply (i.e., $D/S$)\(^1\).\(^2\)

Whereby any value of $\leq 1.0$ signifies sustainable performance; $>1.0$ signifies unsustainable performance.

Adapted from the ‘Sustainability Quotient’ (Social Footprints, McElroy, 2008); see Appendix below for more about this, while noting that whereas in ecological cases an entity is expected to constrain its demands for resources (i.e., curtail its consumption of natural capitals), in others it is expected to maintain their supply (i.e., continually produce and/or maintain the sufficiency of human, social, constructed and economic capitals) – all in accordance with its material, entity-specific duties and obligations to its stakeholders.
Graphically reporting integrated performance

**AREAS OF IMPACT (AOIs)**
Performance reports are shown both in terms of broad categories and individual areas of impact; specific AOIs and groupings are always entity-specific as determined from materiality analyses.

**THRESHOLDS**
The inner green band represents equilibrium between demands for vital capitals and their available supplies, with results expressed in terms of demands as a percentage of supplies.

**SCORING CONVENTIONS**
- **White % scores** report performance for each AOI: expressed as the quotient of demand (D) for a vital capital over its supply (S), where <100% = sustainable
- **Yellow % scores** report performance for each category (outer band) and for all AOIs overall (center) – expressed as % of AOIs that scored sustainably

**SUSTAINABILITY REPORTING**
All cases where demands for stocks and flows of vital capitals exceed available supplies (unsustainable) are shown in red, and alternatively in green in cases where demands equal or fall below supplies.

**MANAGEMENT IMPLICATIONS**
Whereas exceedances in the case of ecological impacts usually means too much consumption, exceedances in the case of social and economic impacts more often means too little production – management strategies can be planned and carried out accordingly.

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1See, for example, “Making Materiality Determinations: A Context-Based Approach” (McElroy, 2019)
Flexibility, both in terms of AOIs and their arrangements

The same report viewed in two different ways, populated with entity-specific areas of impact (AOIs)
Supports triple bottom line organizational reporting, too!

### Sample Context-Based Triple Bottom Line (TBL) Report for an Organization (Company XYZ)

<table>
<thead>
<tr>
<th>Vital capitals:</th>
<th>Natural</th>
<th>Constructed</th>
<th>Internal Economic-Financial</th>
<th>Human</th>
<th>Internal Economic-Northsouthern</th>
<th>Social &amp; Relationship</th>
<th>External Economic-Northsouthern</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>BOTTOM LINES</th>
<th>AREAS OF IMPACT*</th>
<th>CAPITAL IMPACTS</th>
<th>Actual Impacts (Numerator)</th>
<th>Normative Impacts (Denominator)</th>
<th>Quotient Scores (AB)</th>
<th>Harmonized Scores**</th>
<th>TRIPLE BOTTOM LINE (TBL) SCORES (% of Areas of Impact that Score Sustainability)**</th>
<th>Illustrative Indicators for sustainability norms and thresholds (defined for each)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCIAL</td>
<td>Worker safety</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>For a typical line safety issue</td>
<td>Product safety score</td>
</tr>
<tr>
<td></td>
<td>Product safety</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>N people of color in management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Racial equity</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>N people of color in management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gender equality</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>N people of color in management</td>
<td></td>
</tr>
<tr>
<td>ECONOMIC</td>
<td>Living wages</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>N people earning living wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Financial returns</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>Earnings relative to cost of living</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Debt</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>Debt-to-total debt ratio</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TBL reporting</td>
<td></td>
<td>5.00</td>
<td>6.00</td>
<td>0.83</td>
<td>75%</td>
<td>Use of credit-based accounting</td>
<td></td>
</tr>
<tr>
<td>ENVIRONMENTAL</td>
<td>Nonrenewable resources</td>
<td>1.00</td>
<td>1.00</td>
<td>0.83</td>
<td>0.83</td>
<td>0.83</td>
<td>0.83</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>Water</td>
<td></td>
<td>12.00</td>
<td>15.00</td>
<td>0.83</td>
<td>75%</td>
<td>N people treated for water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biodiversity</td>
<td></td>
<td>1.00</td>
<td>1.00</td>
<td>0.83</td>
<td>75%</td>
<td>N people treated for water</td>
<td></td>
</tr>
</tbody>
</table>

| OVERALL TBL SCORE | 33% |

A Context-Based Integrated Report

Brings graphical reporting to context-based integrated accounting

The Same Report in Graphical Form

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Key features and benefits of Pie Slice Accounting ...

- Displays performance in simple terms relative to a single sustainability threshold as compared to other, more visually complex models\(^1\)
  - Resource supplies and demands are either in harmony with each other or not!

- Does not force a predetermined set of indicators on all cases\(^1\) and instead defers to the results of entity-specific materiality determinations (i.e., is context-based)\(^2\)

- Is applicable to human social systems at all scales and does not preclude use by organizations, in particular, as some other models do\(^3\)

- Can be used in conjunction with any context-based performance accounting tool\(^2\)

- Is flexible and modular in terms of how areas of impact are defined, grouped and portrayed for graphical reporting purposes

- Otherwise relies on familiar red/green color coding and percentages to tell the whole story of a population’s performance at 3 levels: (1) AOI, (2) Bottom Line, and (3) Overall

- Is freely available under a Creative Commons License\(^4\)

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\(^1\) See, for example, the Doughnut Economics model: [https://doughnuteconomics.org/about-doughnut-economics](https://doughnuteconomics.org/about-doughnut-economics)

\(^2\) For more on open-source context-based accounting, see here: [https://en.wikipedia.org/wiki/Context-Based_Sustainability](https://en.wikipedia.org/wiki/Context-Based_Sustainability)

\(^3\) [https://doughnuteconomics.org/themes/](https://doughnuteconomics.org/themes/)

\(^4\) The Pie Slice Accounting model is freely and publicly available under a Creative Commons License CC-BY-NC-SA 4.0.
Thank you!

Questions, comments and inquiries most welcome:

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Also, for an in-depth white paper on *Pie Slice Accounting*, see:

“Think Pies, Not Doughnuts: Introducing Pie Slice Accounting”

https://www.sustainableorganizations.org/Think-Pies-Not-Doughnuts.pdf

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Appendix

How the “A/N” Sustainability Quotient Translates into the “D/S” Quotient Used in the Pie Slice Accounting Model
## How A/N\(^1\) translates into D/S

### Ecological Case

- **A** (Actual consumption)
- **N** (Normative consumption)

### Social and Economic Cases

- **A** (Actual production)
- **N** (Normative production)

### Scoring Conventions

- For ecological impacts: \(<1.0 = \text{sustainable}; \ >1.0 = \text{unsustainable}\)
- For social/economic impacts: \(\geq1.0 = \text{sustainable}; \ <1.0 = \text{unsustainable}\)

Same as above, while noting that although norms in the case of ecological impacts are driven by immutable limits in the *supplies* of natural capitals, for social and economic impacts the opposite is true. For them, there are only mutable limits, since the capitals involved are anthropogenic. Norms in those cases, therefore, are driven entirely by *demands* that call for minimally sufficient levels of capital production that must be maintained in order to meet or exceed human needs.

Here, the quotient for the social and economic cases has been inverted in order to harmonize (i.e., make commensurable) scores received from the use of it with those received from the use of the quotient in the ecological case (i.e., where any score of \(<1.0 = \text{sustainable}, \) and any score of \(>1.0 = \text{unsustainable}\)). This is what makes simplified graphical reporting with only one threshold, not two, possible in the Pie Slice Accounting model!

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\(^1\) The ‘Sustainability Quotient’, first introduced in *Social Footprints*, McElroy (2008)

\(^2\) Ibid.; “anthro capitals” are *anthropogenic* capitals